

Supplementary Materials: Selectivity Enhancement in Molecularly Imprinted Polymers for Binding of Bisphenol A

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Table S1. Preparation of MIPs using different molar ratios of BPA to MAA while keeping EGDMA constant.

Molecularly Imprinted Polymer	Molar Ratio			Mole % BPA
	BPA (mmol)	MAA (mmol)	EGDMA (mmol)	
MIP ₁	1	9	7	6
MIP ₂	2	8	7	12
MIP ₃	3	7	7	18
MIP ₄	4	6	7	24
MIP ₅	5	5	7	29
MIP ₆	6	4	7	35
MIP ₇	7	3	7	41
MIP ₈	8	2	7	47
MIP ₉	9	1	7	53

Table S2. Percent binding results for BPA, DFC and MF (individually or in mixture) and electrophoretic mobility for NIPs.

NIPs (MAA:EGDMA Molar Ratio)	% Binding (Individual)			% Binding (Mixture)			Electrophoretic Mobility (10 ⁻⁹ m ² ·V ⁻¹ ·s ⁻¹)
	BPA	DFC	MF	BPA	DFC	MF	
NIP ₁ (9:7)	80 ± 1	25 ± 1	70 ± 1	75 ± 1	25 ± 1	73 ± 1	29
NIP ₂ (8:7)	88 ± 1	26 ± 1	73 ± 1	75 ± 1	18 ± 2	67 ± 1	27
NIP ₃ (7:7)	91 ± 1	29 ± 1	71 ± 1	92 ± 1	33 ± 2	74 ± 1	28
NIP ₄ (6:7)	92 ± 1	31 ± 1	62 ± 1	92 ± 1	25 ± 2	60 ± 1	29
NIP ₅ (5:7)	91 ± 1	29 ± 2	75 ± 1	96 ± 1	32 ± 1	62 ± 1	29
NIP ₆ (4:7)	90 ± 1	25 ± 1	69 ± 1	97 ± 2	28 ± 3	58 ± 1	28
NIP ₇ (3:7)	99 ± 1	32 ± 1	55 ± 2	99 ± 1	38 ± 2	58 ± 1	28
NIP ₈ (2:7)	99 ± 1	37 ± 1	58 ± 1	99 ± 1	39 ± 1	54 ± 1	28
NIP ₉ (1:7)	96 ± 1	40 ± 1	50 ± 1	99 ± 1	43 ± 1	56 ± 1	28

Table S3. Percent binding results for BPA, DFC and MF (individually or in mixture) and electrophoretic mobility for various TNIPs.

TNIPs (MAA:EGDMA Molar Ratio)	% Binding (Individual)			% Binding (Mixture)			Electrophoretic Mobility (10 ⁻⁹ m ² ·V ⁻¹ ·s ⁻¹)
	BPA	DFC	MF	BPA	DFC	MF	
TNIP ₁ (9:7)	99 ± 1	18 ± 1	54 ± 1	99 ± 1	14 ± 1	41 ± 1	25
TNIP ₂ (8:7)	99 ± 1	10 ± 1	27 ± 1	90 ± 1	14 ± 1	27 ± 1	24
TNIP ₃ (7:7)	99 ± 1	16 ± 1	38 ± 1	90 ± 1	16 ± 1	30 ± 1	24
TNIP ₄ (6:7)	99 ± 1	17 ± 1	30 ± 1	99 ± 1	19 ± 1	26 ± 1	23
TNIP ₅ (5:7)	99 ± 1	19 ± 2	17 ± 1	99 ± 1	40 ± 1	36 ± 1	24
TNIP ₆ (4:7)	99 ± 1	26 ± 1	30 ± 1	99 ± 1	26 ± 1	16 ± 1	24
TNIP ₇ (3:7)	99 ± 1	24 ± 1	29 ± 1	99 ± 1	37 ± 1	22 ± 1	24
TNIP ₈ (2:7)	99 ± 1	36 ± 1	27 ± 1	99 ± 1	30 ± 1	20 ± 1	23
TNIP ₉ (1:7)	99 ± 1	45 ± 1	31 ± 1	99 ± 1	54 ± 1	30 ± 1	22

Table S4. Percent binding results for BFN (individually) with various MIPs, NIPs, TMIPs and TNIPs.

Baclofen % Binding (Individual)			
MIPs	NIPs	TMIPs	TNIPs
MIP ₁ = 13 ± 3	NIP ₁ = 14 ± 1	TMIP ₁ = 5 ± 2	TNIP ₁ = 8 ± 3
MIP ₂ = 7 ± 3	NIP ₂ = 16 ± 2	TMIP ₂ = 12 ± 2	TNIP ₂ = 10 ± 3
MIP ₃ = 7 ± 3	NIP ₃ = 16 ± 2	TMIP ₃ = 14 ± 2	TNIP ₃ = 7 ± 2
MIP ₄ = 6 ± 3	NIP ₄ = 17 ± 2	TMIP ₄ = 10 ± 1	TNIP ₄ = 4 ± 3
MIP ₅ = 10 ± 2	NIP ₅ = 16 ± 2	TMIP ₅ = 7 ± 3	TNIP ₅ = 4 ± 3
MIP ₄ = 10 ± 2	NIP ₆ = 10 ± 3	TMIP ₆ = 10 ± 2	TNIP ₆ = 6 ± 2
MIP ₃ = 14 ± 2	NIP ₇ = 7 ± 2	TMIP ₇ = 8 ± 2	TNIP ₇ = 6 ± 3
MIP ₂ = 10 ± 1	NIP ₈ = 7 ± 3	TMIP ₈ = 7 ± 2	TNIP ₈ = 8 ± 3
MIP ₂ = 10 ± 1	NIP ₉ = 9 ± 2	TMIP ₉ = 10 ± 2	TNIP ₉ = 12 ± 3

Table S5. HPLC-UV peak heights, peak areas and retention times for BFN, BPA, DFC and MF.

Concentration (ppm)	Peak Area	Peak Height	Retention Time (min)
MF (200)	679,024	38,547	2.5
DFC (200)	49,417,648	1,205,569	3.6
BFN (200)	12,274,367	417,392	4.1
BPA (100)	32,571,576	1,487,642	6.6